What is Claimed is:

1. An improved process for the production of powders of inhalable medicaments by crystallization from a supersaturated fluid containing said medicament, the improved process comprising passing along a tubular reactor

(a) a segmented flow of a supersaturated fluid containing medicament comprised of discrete volumes; or

(b) a fluid mixture being separated by discrete volumes of a separating fluid which is substantially immiscible with the supersaturated fluid containing medicament,

and initiating crystallization by application of ultrasound.

2. The process as claimed in claim 1 wherein the segmented flow passes along the tubular reactor as a plug flow.

3. The process as claimed in claim 1 wherein the tubular reactor consists of the following segments:

(i) a residence time (t_R) segment;

(ii) an ultrasound time (t_{US}) segment; and

(iii) optionally an aging time (t_A) segment.

4. The process as claimed in claim 3 wherein t_{US} is 1 to 30 s and t_A is 0.5 to 15 min.

5. The process as claimed in claim 3 wherein t_{US} is 0.5 to 15 min and t_A is 0 to 30 s.

6. The process as claimed in claim 1 wherein ultrasound with a frequency of 20 to 60 kHz is applied.

7. The process as claimed in claim 6 wherein the energy density of the ultrasound applied is from 10 to 80 WL^{-1}.

8. A micro-reactor for implementing the process according to claim 1 comprising a micro-mixer, a segmenter and a tubular reactor, wherein

- the dimensions of the micro-mixer for dividing the added fluids which are to be mixed is in the range of 10 μm to 1 mm, preferably between 25 μm to 200 μm,
- the dimensions of the channels of the segmenter lie in the range of 0.1 to 5 mm, preferably in the range of between 0.2 mm and 5 mm, and
- the tubular reactor is configured to be tube-, pipe- or channel-shaped with diameters of the channels in the range of 0.5 to 10 mm, preferably 1 mm to 2 mm, and with a length of between 10 cm and 200 m, preferably between 1 m and 25 m and is equipped with an external ultrasound source.

9. The micro-reactor according to claim 8, wherein the tubular reactor consists of the following segments:

(i) a residence time (t_R) segment;

(ii) an ultrasound time (t_{US}) segment; and

(iii) optionally an aging time (t_A) segment.

10. The micro-reactor according to claim 9, wherein the ultrasound time (t_{US}) segment is inserted into an ultrasound bath.

11. An inhalable medicament with an aerodynamic diameter of less than 20 μm, preferably less than 5 μm and greater than 0.3 μm, characterized in that it is produced by means of a process according to claim 1.